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CENTRAL INTELLIGENCE AGENCY

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1. Rails

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(a) In 1945 the Hungarian Railway system employed rails of three different sizes. They varied in weight according to the type of rolling stock which was to be drawn over them. [redacted] heaviest rails [redacted] weighed 46.30 kilograms per meter /101.86 pounds per 39.37 inches/ were designed primarily for high speed traffic. Such rails were used on the following major or key railway systems:

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(1) Budapest-Vienna
(2) Budapest-Szekesfehervar-Martonvasar
(3) Budapest-Hatvan-Miskolc

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(b) The other two sizes of rails were the 43.80 kilogram per meter /96.36 pounds per 39.37 inches/, and the 2/2.00 kilograms per meter /92.4 pounds per 39.37 inches/. These two types or sizes were utilized as follows: the 43.8 kilogram rail was used for traffic which did not exceed 75 kilometers per hour /46[illegible]/ and the 42. kilogram rail was used only on the secondary lines where traffic moved very slowly and with less frequency.

(c) All three sizes of rails used on the Hungarian State Railway were identical to the types and sizes utilized by Germany.

(d) Diagram of Hungarian rail attached to the tie: Dimensions on diagram are expressed in milimeters.

#1 - Rail
#2 - Railway spike
#3 - Tie plate

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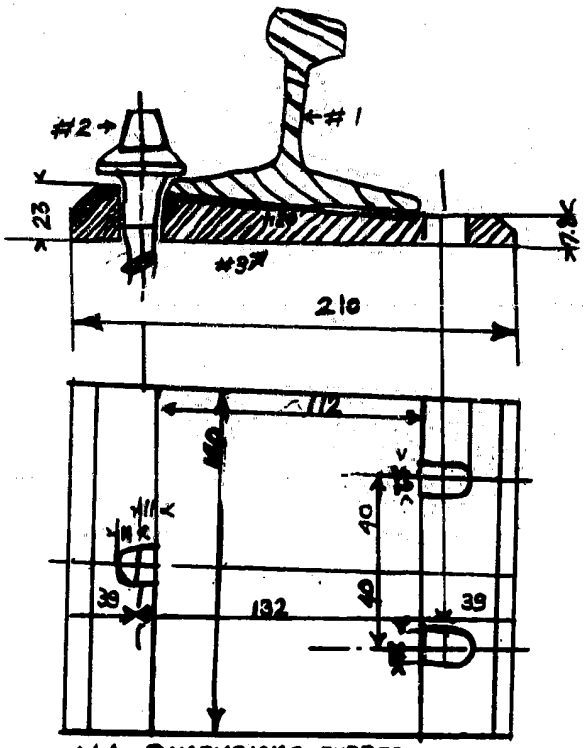
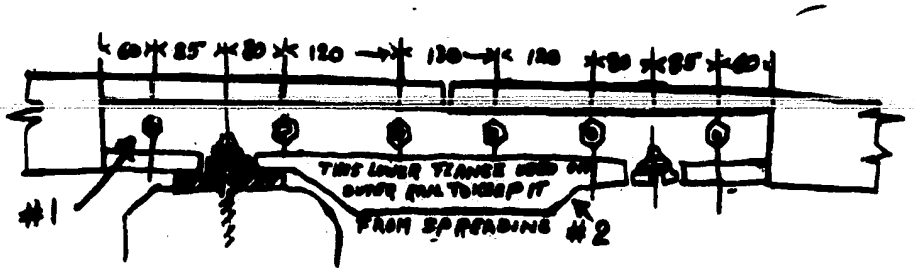


ALL DIMENSIONS EXPRESSED IN MILIMETERS

(In 1945 all rails in Hungary had the same dimensions above type tie plate was only kind in use in 1945)

(e) Diagram of Fish Plate

#1 Fish plate
#2 Lower flange of fish plate.



(f) Rails on the main lines of Hungary are 40 meters long. In many cases welded together two 40 meter length of rail thus creating an 80 meter length (264.47 feet). For secondary and tertiary railroads, the average length of the rails was 20 meters (65.62 feet).

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2. Condition of rails and roadbeds

(a) The Hungarian rails and roadbeds were always maintained in tip-top condition. Hungarian inspection crews, by State decree, inspected the rails and beds at least once a year.

(b) Whenever section gangs (vasuti-bakter) [the Hungarian common name] or palyaor [the official name for section gangs] detected need for repair they reported such need to the nearest station master, who, in turn, relayed the information to Division Headquarters. 50X1-HUM the function of section gangs in Hungary differs from that of US section gangs. In Hungary such workers are not permitted to do actual repair. Their mission is to keep the roadbeds free of debris and weeds. [Special crews are sent from repair shops to handle repair and replacement work.]

(c) It is difficult to ascertain the replacement rate of rails, 50X1-HUM once a year 50X1-HUM tested and inspected them throughout the country.

3. Domestic production of rails, tie plates, spikes and plates and switches.

(a) Up to 1945 the above items were manufactured at two of Hungary's larger steel factories. The plant at Diosgyor, now state-owned, was the largest producer of rails and other roadbed equipment. It produced the three sizes of rails mentioned previously. Each rail which left this shop bears on the outer surface the word Diosgyor and the date of fabrication, example - Diosgyor - 1943. 50X1-HUM

(b) The other large producer was the Weiss-Manfred, a large steel factory on the north tip of Csepel Island. [Name of this plant changed to Rakosi-Mirvek. Although Rakosi-Mirvek has facilities to produce all sizes of rails it concentrated on the two smaller sizes. 50X1-HUM

4. Exports [Hungarian railway equipment]

(a) Railway equipment was exported to North Africa. 50X1-HUM passenger cars, freight cars and motor coaches. [The Hungarian motor coach which resembles a US Pullman car was manufactured in two sizes, one with a 250 HP Diesel engine and the other with a 500 HP Diesel engine.] In 1945 there were about 184 Diesel motor coaches in Hungary. Only two of that number were the large 500 HP size. Incidentally, 50X1-HUM the large Diesel motor cars "Arpad". 50X1-HUM motor coaches were turned out at the Ganz factory. The Arpads could tow three passenger cars so they were used for local and suburban passenger transportation. Alexandria, Egypt and Tripoli, Libya were the only North African recipients of the items enumerated. 50X1-HUM

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(b) 50X1-HUM exported a considerable number of the 324-type locomotives 50X1-HUM

(c) To South America 50X1-HUM shipped a few motor cars. 50X1-HUM

5. Import of Railway equipment 50X1-HUM

(a) Up to 194[illegible] received 50X1-HUM either eight or ten prototypes of the 328 locomotive. 50X1-HUM

(b) 50X1-HUM prior to World War II 50X1-HUM purchased electro-locomotive parts. 50X1-HUM However, by 1945 50X1-HUM produced in sufficient quantity and quality 50X1-HUM

(c) Our electrical signalling and dispatch equipment (the block instruments), 50X1-HUM Siemens-Halske was all procured in Germany. 50X1-HUM

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6. Railroad Ties

(a) Hungary relied mainly upon the wooden tie. however, experiment with concrete and steel ties. found both concrete and steel unsatisfactory and in the long run more expensive with the result that wooden ties are universally used.

(b) wooden ties are of two sizes. For main lines used the larger size, 240 to 260 mm wide and 150-160 mm high (top to bottom).

(c) Since the railways of Hungary are essentially standard gauge [4 ft 9 in] the length of ties is comparable to those used on US railways.

(d) Oakwood ties are used on the main lines. They are the large size These oak ties are chemically treated in large vats which contain a solution of tar and cyanide. Hungary did not use creosote because they were never confronted with termite infestation. utilized the above chemical preparation in order to cope with the weather, frosts in particular. While the ties were being chemically treated they were exposed to high pressures and temperature.

(e) oak was the most economical for the replacement rate fluctuated from 18 to 20 years per tie if properly treated.

(f) The smaller ties are 180 mm to 200 mm wide and 150 mm high (top to bottom). These ties were used only on secondary lines where speed was restricted. On these lines the smaller ties were cut from either pine or beech wood, primarily pine.

(g) Tie spacing [distance between ties] was determined by speed of traffic. Wherever rolling stock travelled at high speeds (above 75 kms per hour [46 MPH]) ties were spaced 15 to 16 centimeters apart. For lower speed traffic ties were spaced about 75 centimeters apart.

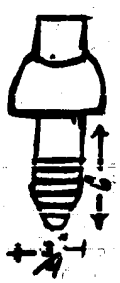
(h) With reference to steel and concrete ties, on portions of the line between Budapest-Ujszasz-Szolnok, replaced wooden ties with steel ties. made the steel ties slightly wider than those replaced. This was done in sandy areas. By making the tie wider attempted to prevent the sinking which is prevalent in sandy areas. experiment resulted in failure for the ties continued to sink and furthermore were the source of loud noise whenever traffic rolled over them. experiment with concrete ties was also a failure for it was learned that although concrete was cheaper than wood, it deteriorated in five or six years (no further attempts have been made to use other than wood).

(i) The number of ties per kilometer varies from 1600 to 2000.

(j) Up to 1943 wooden ties were made at Eszaki Fomuhely [sic]. The chemical plant which provided tie preservative was located at Puspokladany. Its commercial name was MAV Faletotelep.

7. Rail fastenings

(a) two types of spikes to secure the rail and plate to the tie. The following is a diagram of the newer type which we introduced in 1935.

(b) 

In order to screw this type of spike into the ties, holes are first drilled about three inches into the wood. A special wrench is then used to twist the screw-spike the remaining distance.

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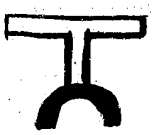
(c) 

Wrench used to twist the screw-spike into the ties.

(d)

This is the conventional spike, similar to those used in the US.

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8. Ballast

(a) used granite on the crack lines of Hungary, particularly where speed and heavy traffic were common. It was found that granite was ultimately more economical than other ballast because of its durability and weight. 50X1-HUM

(b) secondary lines not devised for fast travel used either granite or a basalt-like material. To either of these added three parts of limestone, thus the ratio of one part granite to three parts limestone. 50X1-HUM 50X1-HUM 50X1-HUM

(c) As ballast for third grade roads (most usually small branch lines), used only gravel. the above minerals were plentiful in Hungary. 50X1-HUM

9. Railway bridges

(a) Although there are a number of railway bridges of significance in Hungary, the bridge which connects Kalenfold with Ferenc-Varos the most important. If this bridge were not functioning, Hungary would be cut into two parts. This bridge, which crosses the Danube, is called Vasuti Hid by the Hungarians. The main east-west railway line crosses Vasuti Hid thus carrying important cargo to and from the major cities and industrial centers. It is a fixed bridge (not draw or suspension type), is level its entire distance and it stands about 12 meters above the highest water level of the Danube. 50X1-HUM

(b) The supports or piling for Vasuti Hid are constructed of concrete, and the carriage or frame structure is all steel. Although Vasuti Hid was damaged and cut near the Ferenc-Varos side during World War II, the damage was not great. The Hungarian Railway System always has in reserve spare parts and materials for Vasuti Hid. There are two sets of tracks /double tracks/ over the bridge and a pedestrian walk on the north side. The piling under the bridge is very wide with the consequence that Hungary could lay another span of bridge adjacent and parallel to Vasuti Hid. estimate the length of this bridge to be from 350 to 400 meters. /Incidentally, Vasuti Hid was never guarded or patrolled in 1945 or 1946./ 50X1-HUM

(c) Another bridge of strategic consequence is the single-track bridge in northern Hungary. This bridge is located at Ujpest. It is also of steel construction but is much lighter than the one between Kalenfold and Ferenc-Varos. consider this bridge important in that it serves as a link to the eastern and north-eastern centers of Europe. 50X1-HUM

(d) The bridge which crosses the Tisza River joining Szolnok and Szajol, Hungary is almost identical to the bridge between Kalenfold and Ferenc-Varos. However, it is not as far above the water. It spans the Tisza River at about eight meters when the Tisza is at its highest level.

(e) The USSR has constructed two bridges in Hungary since 1947. no details as to construction or facilities. One of these bridges spans the Danube at Dunafoldvar and the other spans the Tisza at Tiszafured. 50X1-HUM

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10. Tunnels (Railway)

About the only railway tunnel of any consequence in Hungary is the one on the main line between Hatvan and Miskolc. It is not equidistant from either town and is located perhaps somewhat nearer Hatvan. This tunnel is approximately 1500 meters long and has been cut through solid stone.

11. Water shortage

(a) There was a shortage of water almost every year, particularly, along the line between Budapest and Pecs. The major source of water for Hungarian railways are wells which have been drilled near railway junctions. The grade between Budapest and Pecs is quite steep with the result that much water was consumed. requests from freight trains operating over this line. Single locomotives had difficulty in pulling heavy loads over the summit, consequently, we dispatched an additional locomotive to assist in the strenuous haul. 50X1-HUM

(b) Other areas where two locomotives were necessary were Budapest-Hatvan-Miskolc and on the branch line from Debrecen to Tiszafured.

12. Brick factory

(a) The largest brick factory of Hungary is located in Budapest at Ujleki. It is called Teglagayar. Incidentally, a number of the larger cities of Hungary have brick yards or plants. Output not recalled 50X1-HUM

(b) The soil of Hungary is conducive to brick making for about two meters below the top soil are large clay deposits. clay was found from three to seven meters below the surface. Water can be found almost anywhere at approximately 10 meters below the earth's surface. 50X1-HUM

(c) The brick plant at Obudai [via] turned out approximately 30 thousand bricks per day in 1944.

13. Strategic considerations

(a) the key to sterilising Hungarian railway facilities in the event of military action or hostilities could most easily be achieved by demolishing the afore-mentioned bridges. Such action would certainly paralyse internal railway communications. Another strategic sector, but one which has no bridges, is the line Budapest-Hatvan-Miskolc. This line is the primary route for traffic to and from the USSR. 50X1-HUM

(b) the USSR has removed many of the older and experienced Hungarian technicians from the railways and has replaced them with old line Communists or with personnel from the USSR. 50X1-HUM

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